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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,475	06/26/2003	Miki Ono	9281-4621	6425
757	7590	03/26/2004	EXAMINER	
GENERAL NUMBER 00757 BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60611			MENEFFEE, JAMES A	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/607,475	<b>Applicant(s)</b> ONO ET AL.	
	<b>Examiner</b> James A. Menefee	<b>Art Unit</b> 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 32-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

*Paul IP*  
**PAUL IP**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/784,592.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20030623</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Response to Amendment***

In response to the preliminary amendment filed with the application, the specification is amended to add reference to the parent application, claims 1-31 are cancelled, and claims 46-53 are properly renumbered. Claims 32-53 are pending.

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/784,592, filed on 2/15/2001.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 32-53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 32, the claim recites that the second groove portion "includes the first, second, and third inclined surfaces." The claim is indefinite because it is not clear how this configuration can exist. The first and second inclined surfaces 15e, 15f, form the sides of the first groove. The second groove is perpendicular to the first groove; it can be said to include the third

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inclined surface 15g, but it includes as a side surface 15j. It does not include the first and second inclined surfaces 15e, 15f.

Regarding claim 33, the claim recites that the lens is positioned “in the first and second inclined surfaces.” This limitation is indefinite as it is unclear how the lens may be formed “in” these surfaces. It is believed that the lens should be claimed as positioned either on the first and second inclined surfaces or in the first groove portion.

Regarding claims 47 and 50, the claim recites the limitation “the lens.” There is not proper antecedent basis for this limitation. The claims are interpreted as if “lens” were replaced by “fiber” in each instance. Otherwise, the dependency of the claims must be changed.

The remaining claims are rejected as depending on rejected base claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 32, 34-37, 39-40, 43, 45, 47-48, and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Miura et al. (previously cited US 5,966,488).

Regarding claim 32, Miura discloses a method of producing an optical semiconductor device comprising etching first and second opposing inclined surfaces and a third inclined surface perpendicular to the first and second inclined surfaces to form a substantially V-shaped first groove 31 in the silicon substrate 21, and forming a second groove 29 in the substrate such

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that the second groove portion extends in a direction perpendicular to the first groove. See particularly Figs. 2-4 inclusive.

Regarding claim 34, the optical element 28 is mounted to the substrate.

Regarding claims 35 and 45, the recess that forms the second groove is extended across the substrate.

Regarding claim 36, the second groove is formed by sawing in a single direction.

Regarding claims 37 and 39, the groove in Fig. 4 that is on the opposite side of the stopper 34 (i.e. the part at the top of the groove, not the part labeled 31A), may be interpreted as a second groove. Or else the groove 54A in Fig 9 may be interpreted as the second groove. In this case, the groove is formed by wet chemical etching.

Regarding claim 40, the second groove is substantially rectangular.

Regarding claim 43, the optical element is mounted adjacent the upper edge of the third inclined surface.

Regarding claim 47, the fiber may abut the side wall of the second groove.

Regarding claim 48, optical signals are transmitted between the optical element and fiber.

Regarding claim 50, the fiber is fixed subsequent to being positioned.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 33, 42, 46, 49, and 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura in view of Verdiell et al. (US 5,870,417). Miura discloses the limitations of the claims above, but does not disclose the following:

Regarding claim 33, it is not disclosed that a lens is positioned in the grooves. Miura only discloses a fiber. However, Verdiell teaches that it is known in the art to include a lens 24 in the front of an optical fiber that is receiving a light beam (see Fig. 1 and discussion). It would have been obvious to one skilled in the art to include a lens in the front of the fiber (thus providing a lens located as claimed) in order to provide for maximum coupling between the optical element and the fiber, as taught by Verdiell.

Regarding claim 42, the third inclined surface defines an enclosure that can accept a curved surface of the lens.

Regarding claim 46, the second groove in the interpretation given above for claims 37 and 39 does not extend significantly further than the ends of any lens on that would be on the fiber.

Regarding claims 49 and 51-53, the lens may be fixed in optimal position for coupling.

Claims 37-39, 41 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura.

Regarding claims 37-39, Miura discloses the limitations of the claims above, but does not disclose the second groove is etched as claimed in the embodiments of Figs. 2-3. Etching of substrates is well known in the art, as Miura itself discloses the first groove may be etched. It would have been obvious to one having ordinary skill in the art at the time the invention was

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made to etch the substrate rather than cut it as in Miura, since the examiner takes Official Notice of the equivalence of cutting and etching for their use in the groove making art and the selection of any of these known equivalents would be within the level of ordinary skill in the art.

Regarding claims 41 and 44, it is also not disclosed that the second groove may be circular or not as deep as the first. It has been held that mere changes in shape are obvious design choices. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). It would have been obvious to one skilled in the art to change the shape to circular depending on the shape of the fiber to be inserted in the system.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (571) 272-1941. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JM  
February 25, 2004



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